CLAIMS

1. A tight control device (1) comprising:

- a rotating primary shaft (3);

- a rotating secondary shaft (5) being coaxial to said primary shaft (3);

- a first circular plate (7) slopingly fixed to said primary shaft (3);

- a second circular plate (11) fixed to said secondary shaft (5) and parallel to said first plate (7);

- a first plurality of cages (13) circumferentially arranged around said first plate (7) and relative to which said first plate can rotate and a second plurality of cages (21) circumferentially around said second plate (11) and relative to which said second plate can rotate, each of said first cages (13) being interconnected to a corresponding one of said second cages (21) by means of an oscillating rod (9) which is parallel to said shafts (3, 5), hinged to said cages (13, 21);

- a partition (25) between said sloping plates provided with holes (27) through which said oscillating rods pass;

- a sealing sleeve (29) arranged around each of said oscillating rods (9) in correspondence with said holes (27) to prevent gas from flowing through said holes during the oscillating motion of said oscillating rods (9) imparted by the rotation of said first plate (7) caused by the rotation of said primary shaft (3), said oscillating motion being transmitted to said second cages (21) to cause the rotation of said second plate (11) and, consequently, of said secondary shaft (5).

2. A device (1) according to claim 1, wherein said sleeves (29) have an end being tightly fixed to the partition (25) around each hole (27) and the opposite end being tightly closed around the corresponding oscillating rod (9).

3. A device (1) according to claim 2, wherein the sleeves (29) comprise a multilayer cylindrical body (41) provided with an outer wall (41a) and an inner wall (41b) and having a corrugated profile.

4. A device (1) according to claim 3, wherein the sleeves (29) are fixed to the partition (25) in correspondence with holes (27) by means of an outer ring (43) whereto both the outer wall (41a) and the inner wall (41b) of the sleeve (29) are fixed.

5. A device (1) according to claim 4, wherein the outer ring (43) comprises an annular channel (51) wherein the gas eventually existing between the two walls (41a, 41b) of the sleeve (29) flows, further to a leakage caused by the cracking of the outer (41a) or inner (41b) wall.

6. A device (1) according to claim 5, wherein vacuum is achieved between said outer (41a) and inner (41b) walls of said multilayer sleeve (29) and wherein said annular channel (51) is in communication with a pressure detector.

7. A device (1) according to claim 4, 5 or 6, wherein an inner ring (53) is provided, which is concentric to said outer ring (43) and tightly fixed thereto, though which the oscillated rod (9) is guided.

8. A device (1) according to any of the claims 2 to 7, wherein the opposite end of the sleeve (29) is fixed to a circular disc (45) centrally drilled to allow the corresponding oscillating rod (9) to pass, said disc (45) being tightly fixed to the oscillating rod (9).

9. A device (1) according to claim 8, wherein said central hole (47) in said disc (45) is internally threaded as well as the portion (48) of oscillating rod (9) in correspondence with said disc (45), said oscillating rod engaging said thread in order to ensure the seal between said disc (45) and said oscillating rod (9).

10. A device (1) according to claim 1, wherein corresponding balls or rollers (15, 23) are interposed between said first cages (13) and said first plate (7) and between said second cages (21) and said second plate (11).

11. A device (1) according to any of claims 1 to 10, wherein a second partition (25') is provided, being substantially parallel to the first partition (25), and provided with a corresponding series of sleeves (29').

12. A device (1) according to any of claims 1 to 11, wherein an envelope is provided, which is composed of at least two detachable parts (31, 33)

surrounding the device (1) members and allowing the primary shaft (3) and/or the secondary shaft (5) to go outward through corresponding holes (55, 57) housing respective bearings (39, 40).

13. A device (1) according to claim 12, wherein said at least two parts (31, 33) of the envelope are coupled to each other along respective L-bent peripheral edges (31a, 31b) closed the one against the other by means of a plurality of bolts (35a) and nuts (35b), a peripheral portion of the partition (25), which is tightly locked between said edges by means of seals (37), being housed between said peripheral edges (31a, 31b) of the two parts (31, 33) of the envelope.

14. A device (1) according to claim 11 and 12, wherein an envelope intermediate part (32) is provided between said at least two parts (31, 33) of the envelope and wherein said two parts (31, 33) are coupled to said intermediate part (32) along respective L-bent peripheral edges (31a, 33a) closed against corresponding L-bent edges (32a, 32b) of the envelope intermediate part (32) by means of a plurality of bolts (35a) and nuts (35b), a peripheral portion of said first partition (25) and of said second partition (25') respectively being housed between said peripheral edges (31a, 33a, 32a, 32b) of the two parts (31, 33) and of the envelope intermediate part (32), the seal between said portions and said edges being ensured by corresponding seals (37).

15. A device (1) according to claim 14, wherein a tightly insulated chamber (59) is defined between said two partitions (25, 25') and wherein a pressure detector (61) in communication with said chamber (59) is provided in order to timely indicate possible pressure variations therein caused by leaks through sealing sleeves (29, 29').

16. A device according to claim 15, wherein for each of said oscillating rods (9) the corresponding sealing sleeves (29, 29') are both arranged in said intermediate chamber (59).

17. A device according to claim 16, wherein said sealing sleeves (29, 29') corresponding to the same oscillating rod (9) partially overlap on each other.

18. A device according to claim 12, wherein the inner part of said

envelope comprises axial straight grooves (31'b, 33'b) in which said cages (13, 21) are slidingly housed.

19. A device according to any of the preceding claims wherein said partition (26) comprises a housing (26a) wherein an axially sliding control rod (65) is housed, said housing being arranged concentrically in said primary shaft (3').

20. A device according to claim 19, wherein said control rod (65) is the threaded control rod of a salient valve for fluids and wherein said secondary shaft (5') is drilled and internally threaded to engage with said control rod (65).

21. A device according to claim 20, wherein said sloped plates (7', 11') are respectively crossed by said primary (3') and secondary (5') shaft.

22. A device according to claim 21, wherein said secondary shaft (5') is completely housed in the device envelope, and wherein said secondary shaft (5') is hold between two thrust bearings mounted, respectively, in correspondence with said partition (26) and said envelope (33').

23. A device (1) according to any of the preceding claims, wherein said oscillating rods (9) are odd in number.

24. A device (1) according to any of the preceding claims, wherein said first cages (13) and said second cages (21) are uniformly spread around the corresponding sloped plate (7, 11).

25. A valve for fluids characterised in that it comprises a control device (1) as claimed in any of the preceding claims.

26. A valve for fluids according to claim 25, wherein said valve is a ball, or throttle, or plug or globe or gate valve.